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Tekes



Evaluation of policy mixes for sustainability transitions: a preliminary framework and questions to be solved

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SYKE

Starting points and introduction

- We argue that policy mixes for sustainability transitions – going beyond innovation - need to involve both policies aiming for the ‘creation’ of new and for ‘destroying’ (or withdrawing support for) the old technologies, practices, etc.
- Sustainability transitions research
 - Niche creation & protection (e.g. Smith and Raven, 2012)
 - Facilitating new technological innovation systems (e.g. Bergek et al. 2008)
 - Regime destabilisation (Turnheim and Geels, 2012)
- Policy mixes in connection to innovation studies (Magro and Wilson ; Sagar and van der Zwaan 2006; Flanagan, Uyarra et al. 2011)

Creation functions (niche creation)

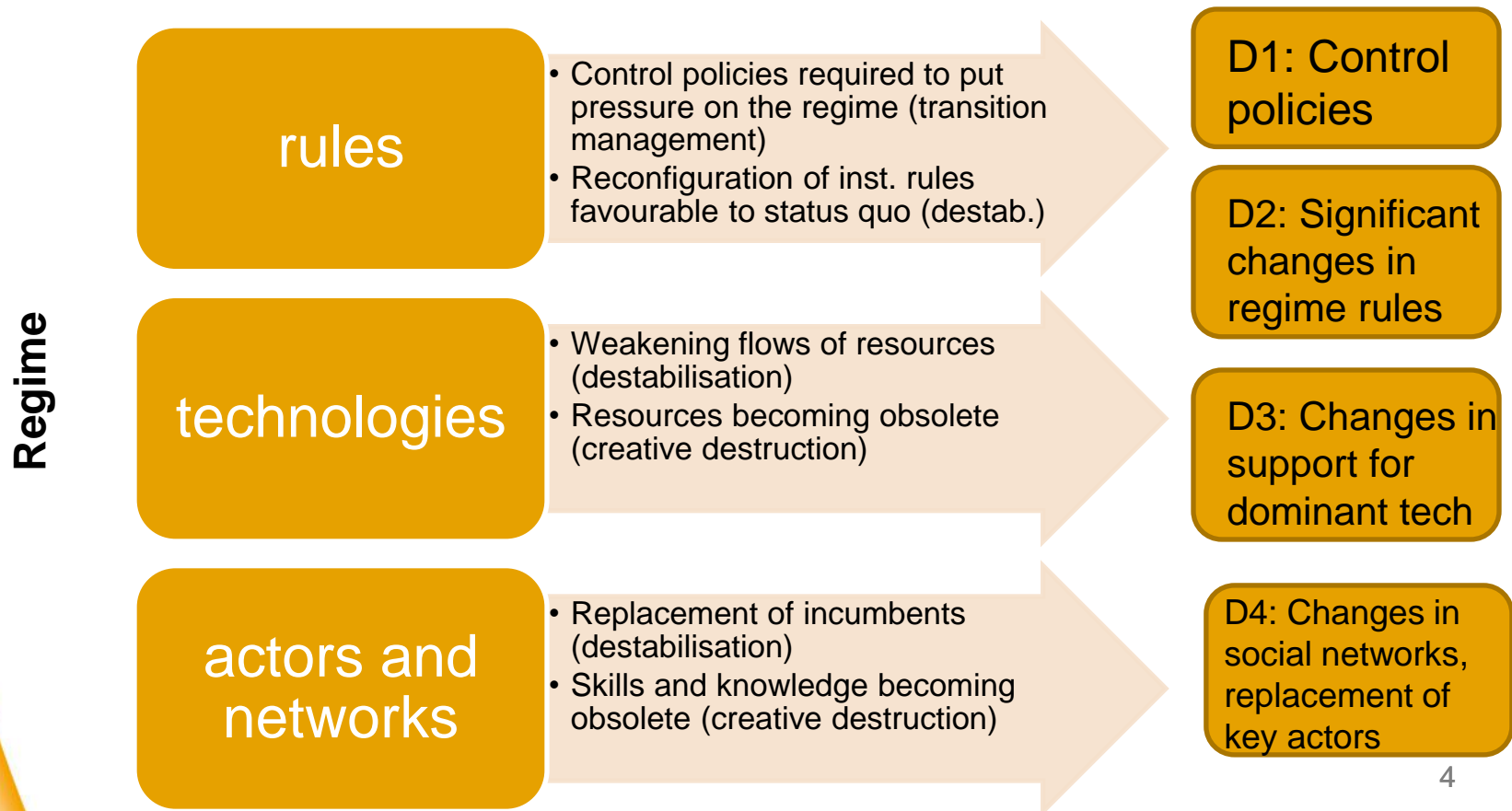
Knowledge creation, development and diffusion (C1)	R&D funding schemes, innovation platforms, demonstration subsidies, etc.
Establishing market niches/ market formation (C2)	Regulation, tax exemptions, public procurement, deployment subsidies
Price performance improvements (C3)	Deployment and demonstration subsidies enabling learning-by-doing
Entrepreneurial experimentation (C4)	Advice systems for SMEs, incubators, low-interest company loans, venture capital, etc.
Resource mobilisation (C5)	R&D and deployment subsidies, venture capital, educational policies, etc.
Support from powerful groups / legitimisation (C6)	Innovation platforms, foresight exercises, labelling etc.
Influence on the direction of search (C7)	targeted R&D funding, regulations, tax incentives, voluntary agreements, etc.

Destruction functions (regime destabilisation)

Control policies (D1)	Emission regulations, carbon taxes, technology bans, etc.
Significant changes in regime rules (D2)	E.g. structural reforms in legislation, significant new overarching laws.
Changes in support for dominant regime technologies (D3)	Removal/reduction of subsidies and R&D funding, technology bans, etc.
Changes in social networks, replacement of key actors (D4)	E.g. creation of new powerful committees with involvement of niche actors

Complementing TIS functions with "destruction functions"

- Four D-functions building on concepts of *regime* (Geels, 2010; Hoogma et al., 2002), *destabilisation* (Turnheim and Geels, 2012), *creative destruction* (Abernathy and Clarke, 1985) and *transitions management* (Rotmans et al., 2001).

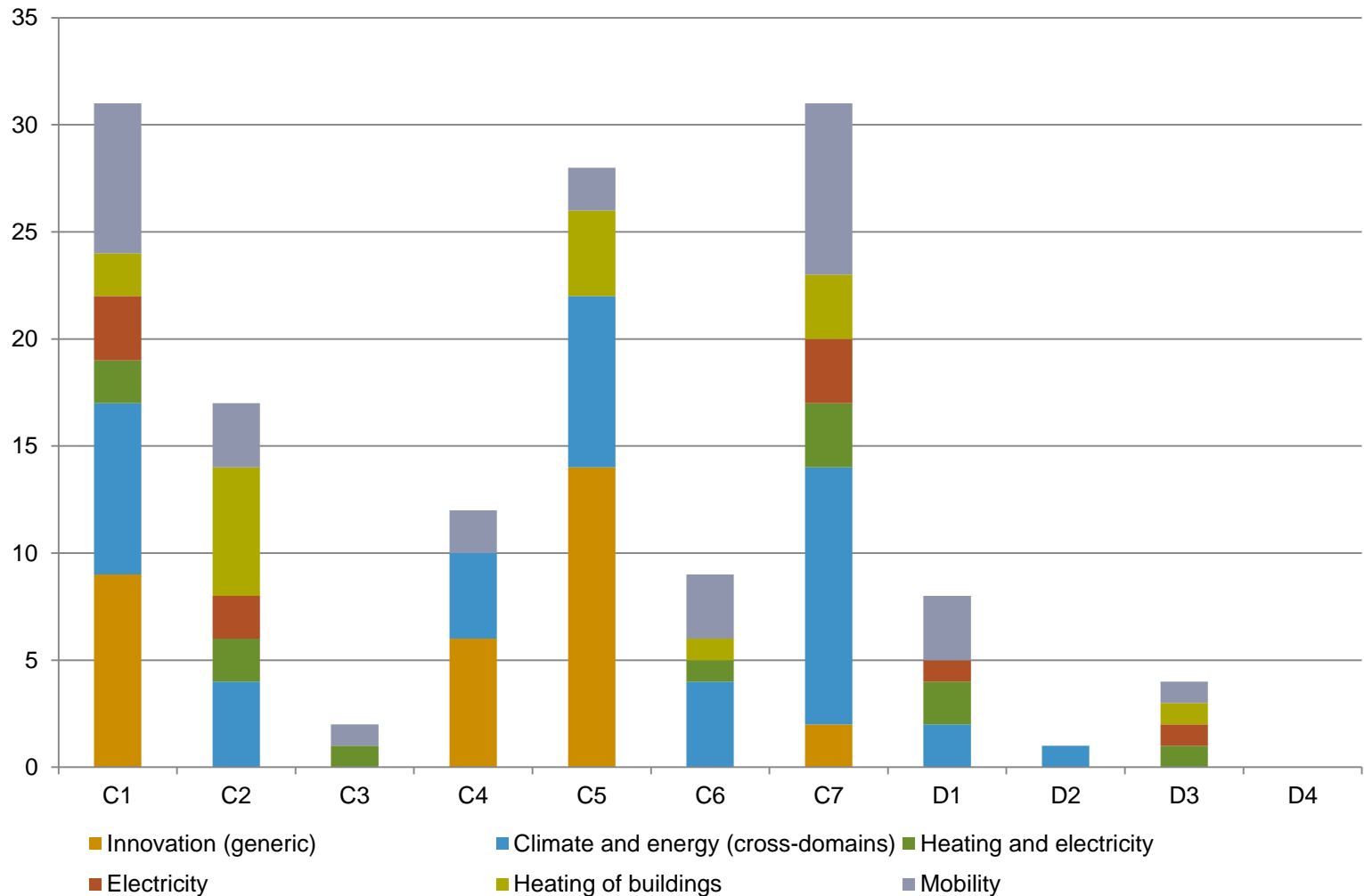


Testing the analytical framework

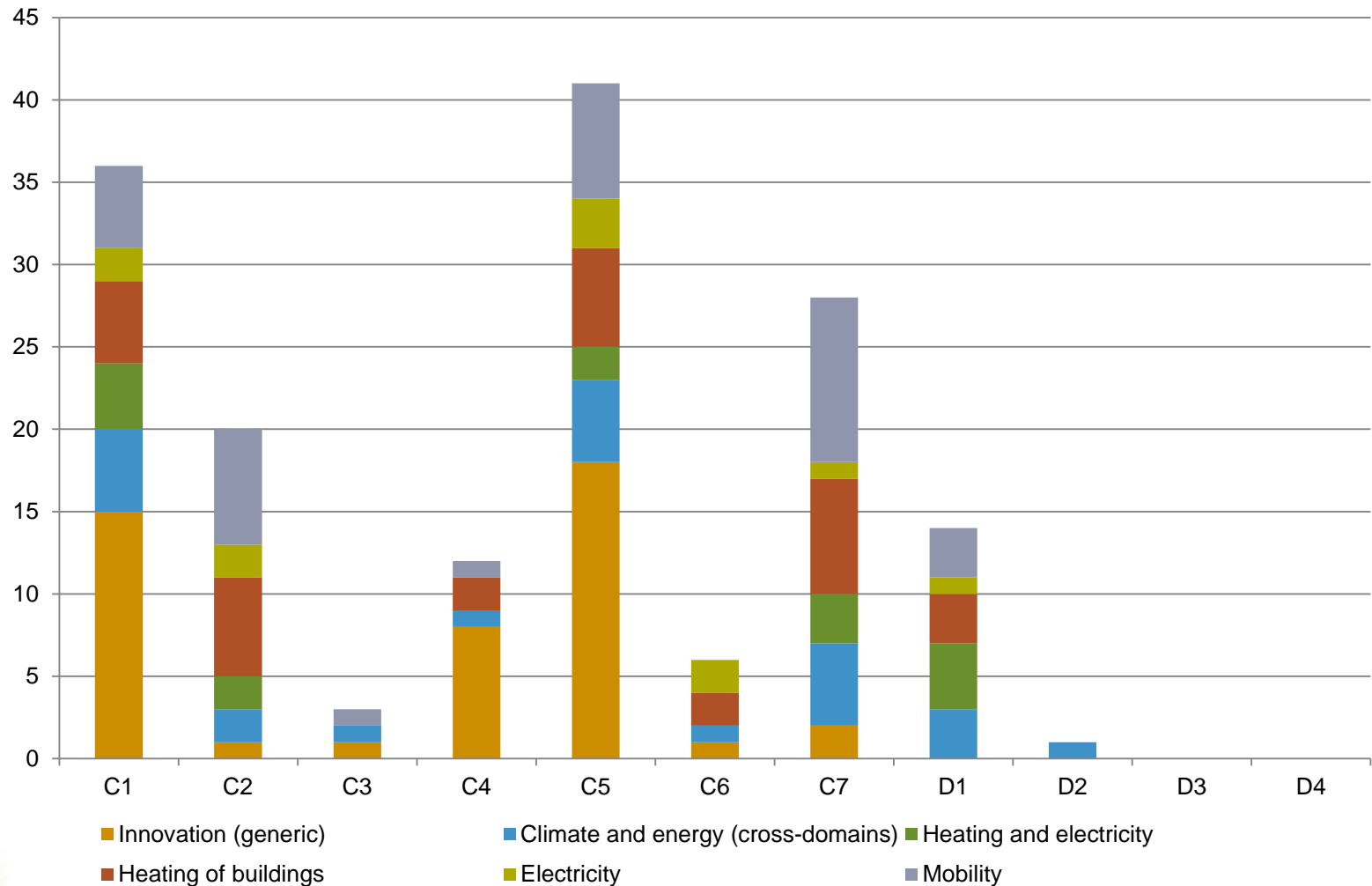
- The context of Finnish and UK policy instruments potentially influencing 'low energy' innovation
 - UK has clear strategy for improving energy-efficiency but policy progress ranked from low to moderate
 - Finland ranked among top three countries in terms of progress in energy efficiency policy but has relatively high energy consumption per capita
- Policy mapping exercise
 - Four international policy measures databases (IEA, EEA, EC Erawatch, BEEP)
 - Lists divided in categories and coded in excel, one instrument can address several functions
 - Draft list of instruments sent for validation to 3+3 national experts
- Focus on relative importance of creation vs. destruction; relative coverage of sub-sectors; important gaps



Policy mix for low energy innovation in Finland

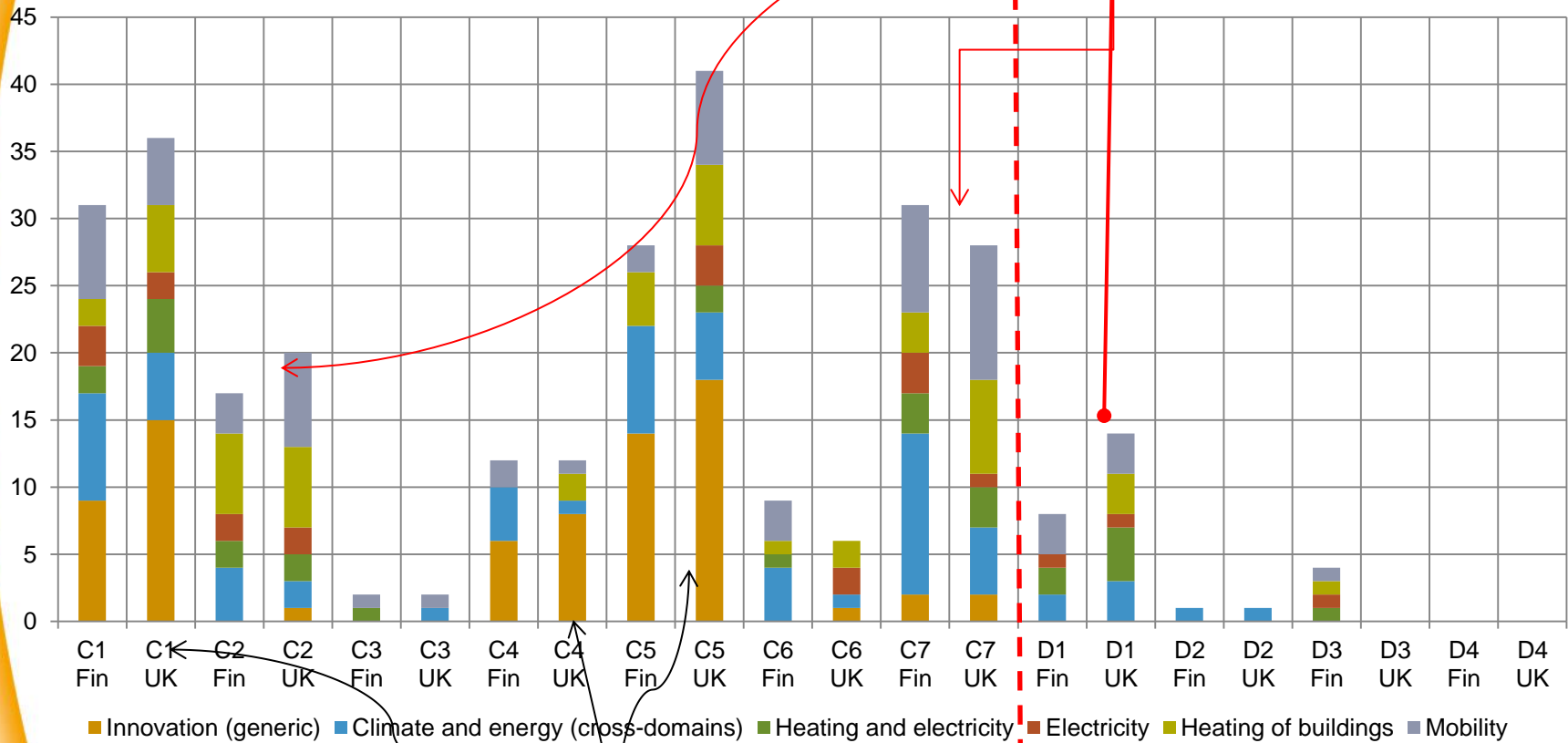


Policy mix for low energy innovation in the UK



Finland (n=58) & UK (n=67)

Control policies D1 often influence also market formation C2 and direction of search C7



Significant role of generic innovation policies in *knowledge creation C1, entrepreneurial experimentation C4 and resource mobilisation C5*

Discussion

- Initial observations of synergies,
 - e.g. dual functions of control policies
 - Links between resource allocation (C5) and removal (D3)
- Problems with the empirical material
 - Databases did not reveal D4 policies, though organisational changes have occurred
 - No information on the effects of the policies

Possible next steps for evaluation of policy mixes for 'creative destruction'

- *Longitudinal analyses*
 - the development of policies (whether possible destabilisation policies are sustained long enough to cause actual destabilisation)
 - the influence of policy mixes over time on system change (incremental vs. disruptive)
- *Examining a more limited mix of instruments*
 - the interaction between instruments and focus on how 'creation' and 'destruction' policies influence together
- *Combination of top down (document based) and bottom up (policy target group based) methods*
 - to capture both the existing mix of policies as well as its effects.



Questions for policy mix evaluations

- To what extent existing policy mixes facilitate the creation of new innovation niches versus destabilise the energy intensive regime? I.e. do destabilising policies exist?
- How do synergies or contradictions between policy goals at strategy or instrument levels influence their efficiency and effectiveness from the long-term system change perspective?
- How could policy evaluations measure 'changes in social networks' with respect to sustainability transitions?

Conclusions

- Policy mixes for sustainability transitions should include instruments that foster new niche creation AND destabilise the lock-in of existing regimes
 - Framework intended for further theory development, empirical evaluation studies and for policymakers
 - Placing of instruments into functions sometimes difficult, further indicators for each function needed – this is where evaluation can help
- Both generic innovation policies and targeted sectorial policies important to create suitable policy mixes from the perspective of transitions
 - Evaluations of policy mixes should reach across policy domains, not just within environmental policy